STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

Request For Bids For Construction Services

Two-Stage Bidding Process

Stage II – Single Project
Invitation to Bid

January 6, 2006

SECURITY SYSTEM UPGRADE
PROVO FOURTH DISTRICT COURT

ADMINISTRATIVE OFFICE OF THE COURTS
PROVO, UTAH

DFCM Project No. 05179150

TABLE OF CONTENTS

Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at http://dfcm.utah.gov or are available upon request from DFCM:

DFCM General Conditions dated May 25, 2005
DFCM Application and Certificate for Payment dated May 25, 2005

Technical Specifications & Drawings: Spectrum Engineers
175 South Main Street SLC, Utah

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at http://dfcm.utah.gov

INVITATION TO BID

ONLY CONTRACTORS PREVIOUSLY SHORT-LISTED DURING STAGE I ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

SECURITY SYSTEM UPGRADE – PROVO FOURTH DISTRICT COURT
ADMINISTRATIVE OFFICE OF THE COURTS – PROVO, UTAH
DFCM PROJECT NO: 05179150

Project Description: Upgrade the existing security system Construction Cost Estimate: $145,000.00.

Company	Contact	Fax
AlphaCorp	Bill Edmunds	801-977-8775
Hidden Peak Electric	Brian Bales	801-262-5689
Johnson Controls	Kjell Holen	801-974-4379

The bid documents (excluding drawings) will be available at 4:00 PM on Friday, January 6, 2006 from DFCM at 4110 State Office Building, Salt Lake City, Utah 84114, telephone (801)538-3018 and on the DFCM web page at http://dfcm.utah.gov. For questions regarding this project, please contact Jim Russell, Project Manager, DFCM, at (801) 538-9784. No others are to be contacted regarding this project.

A **MANDATORY** pre-bid meeting and site visit will be held at 9:00 AM on Wednesday, January 11, 2006 at Provo District Court, 125 North 100 West in Provo, Utah (meet in lobby). Drawings will be distributed in hard copy at this meeting. All short listed prime contractors wishing to bid on this project must attend this meeting.

Bids must be submitted by 3:00 PM on Wednesday, January 25, 2006 to DFCM. **DURING THE 2006 LEGISLATIVE SESSION, THE BIDS WILL BE RECEIVED, OPENED, AND READ ALOUD IN THE CONFERENCE CENTER BUILDING AT THE UTAH STATE FAIRPARK, 155 NORTH 1000 WEST, SALT LAKE CITY, UTAH.** Note: Bids must be received at the Conference Center Building at the Utah State Fairpark by the specified time. The contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
MARLA WORKMAN, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

STAGE II BIDDING PROCESS

ONLY CONTRACTORS PREVIOUSLY SHORT-LISTED DURING STAGE I ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

Invitation to Bid: DFCM will notify each short-listed firm via e-mail and/or fax when a project is ready for construction services.

Bid Documents: Bidding documents including plans and specifications (if applicable) may be obtained by accessing DFCM's web page at http://dfcm.utah.gov or at DFCM's office 4110 State Office Building, Salt Lake City, Utah 84114.

Mandatory Pre-Bid Site Meeting: If required, the schedule contained in this document will indicate the date, time, and place of the mandatory pre-bid site meeting. At this meeting, contractors will receive additional instructions about the project and have an opportunity to ask questions about project details. If a firm fails to attend a pre-bid site meeting labeled "Mandatory" they will not be allowed to bid on the project.

Written Questions: The schedule contained in this document will indicate the deadline for submitting questions in writing to the DFCM Representative pertaining to this project.

Final Addendum: The schedule contained in this document will indicate the deadline for DFCM issuing the final addendum clarifying questions and changes to the scope of work. Contractors are responsible for obtaining and responding to information contained in the addenda.

Submitting Bids: Bids must be submitted to DFCM by the deadline indicated on the schedule contained in this document. **DURING THE 2006 LEGISLATIVE SESSION, THE BIDS WILL BE RECEIVED, OPENED, AND READ ALOUD IN THE CONFERENCE CENTER BUILDING AT THE UTAH STATE FAIRPARK, 155 NORTH 1000 WEST, SALT LAKE CITY, UTAH.** Bids submitted after the deadline will not be accepted. (Additional information pertaining to bidding is contained later in this document).

Subcontractors List: The firm selected for the project must submit a list of all subcontractors by the deadline indicated on the schedule contained in this document. (Additional information pertaining to subcontractor lists is contained later in this document)

2. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Notice to Contractors.

3. **Bids**

Before submitting a bid, each bidder shall carefully examine the Contract Documents; shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Notice to Contractor's prior to the published deadline for the submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.

If the bid bond security is submitted on a bid bond form other than the DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **Note: A cashier's check cannot be used as a substitute for a bid bond.**

4. **Contract and Bond**

The Contractor's Agreement will be in the form bound in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

5. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", which are included as part of these Contract Documents. The subcontractors list shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contract for a period of up to three years.

6. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Representative a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by Addenda duly issued and a copy of such Addenda will be mailed or delivered to each person or entity receiving a set of documents. Neither DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

7. Addenda

Any Addenda issued during the time of bidding shall become part of the Contract Documents made available to the bidders for the preparation of the bid, shall be covered in the bid, and shall be made a part of the Contract.

8. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. The DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

9. DFCM Contractor Performance Rating

DFCM will evaluate the performance of the Contractor. This evaluation may include comments from the User. The Contractor will have an opportunity to review and comment on the evaluation. Evaluations, including the Contractor's comments, may be considered in future selection in the evaluation of the Contractor's past performance.

10. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

11. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

12. Time is of the Essence

The completion deadline for this project is **Tuesday, May 30, 2006** Failure to meet the completion deadline may result in a poor performance rating from DFCM which may have a negative impact on your firm's ability to obtain future work with the state of Utah and may also result in liquidated damages being assessed. Time is of the essence in regard to all the requirements of the Contract Documents.

13. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

14. Product Approvals

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed

the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued Addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

15. **Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors**

Contractors shall respond promptly to any inquiry in writing by the DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor.

16. **Debarment**.

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by the DFCM as part of the requirements for award of the Project.

PROJECT SCHEDULE
Stage II = Two-Stage Bidding Process

PROJECT NAME: **SECURITY SYSTEM UPGRADE – PROVO FOURTH DISTRICT COURT ADMINISTRATIVE OFFICE OF THE COURTS – PROVO, UTAH**
DFCM PROJECT #: 05179150

Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Friday	January 6, 2006	4:00 PM	DFCM, 4110 State Office Bldg, SLC, UT and DFCM web site *
Mandatory Pre-bid Site Meeting	Wednesday	January 11, 2006	9:00 AM	Provo District Court 125 North 100 West Provo, Utah (Meet in Lobby)
Last Day to Submit Questions	Monday	January 16, 2006	4:00 PM	DFCM, 4110 State Office Bldg, SLC, UT
Final Addendum Issued	Thursday	January 19, 2006	4:00 PM	DFCM, 4110 State Office Bldg, SLC, UT or DFCM web site*
Prime Contractors Turn in Bid and Bid Bond	Wednesday	January 25, 2006	3:00 PM	Conference Center Building Utah State Fairpark 155 North 1000 West Salt Lake City UT
Subcontractors List Due	Thursday	January 26, 2006	3:00 PM	DFCM, 4110 State Office Bldg, SLC, UT FAX TO 801-538-3677
Project Completion Date	Tuesday	May 30, 2006		

* **DFCM's web site address is http://dfcm.utah.gov**

** **Due to the limited parking on Capitol Hill and anticipated shortage of parking during the 2006 Legislative Session, all bids will be received, opened, and read at the Conference Center at the Utah State Fairpark. Refer to map on the DFCM web site for directions (http://dfcm.utah.gov/project_center/ads_solicitations.htm)**

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the Request for Bids for the **SECURITY SYSTEM UPGRADE – PROVO FOURTH DISTRICT COURT – ADMINISTRATIVE OFFICE OF THE COURTS – PROVO, UTAH DFCM PROJECT NO. 05179150** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete within **120 calendar days** after receipt of the Notice to Proceed, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of $250.00 per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within time set forth.

Type of Organization:

_____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

BID BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of $_____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____ .

Principal's name and address (if other than a corporation):

_____

_____

By: _____

Title: _____

Principal's name and address (if a corporation):

_____

_____

By: _____

Title: _____

(Affix Corporate Seal)

Surety's name and address:

_____

_____

By: _____

Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

INSTRUCTION AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER $500,000 - ALL SUBS $20,000 OR OVER MUST BE LISTED
PROJECTS $500,000 OR MORE - ALL SUBS $35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A.Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

(1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
(2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
(3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
(4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
(5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
(6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCNTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.

SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:
1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____ SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

FUGITIVE DUST PLAN

The Contractor will fill out the form and file the original with the Division of Air Quality and a copy of the form with the Division of Facilities Construction & Management, prior to the issuance of any notice to proceed.

The Contractor will be fully responsible for compliance with the Fugitive Dust Control Plan, including the adequacy of the plan, any damages, fines, liability, and penalty or other action that results from noncompliance.

Utah Division of Air Quality
April 20, 1999

GUIDANCE THAT MUST BE CONSIDERED IN DEVELOPING AND SUBMITTING A DUST CONTROL PLAN FOR COMPLIANCE WITH R307-309-3, 4, 5, 6, 7

Source Information:

1. Name of your operation (source): provide a name if the source is a construction site.

2. Address or location of your operation or construction site.

3. UTM coordinates or Longitude/Latitude of stationary emission points at your operation.

4. Lengths of the project, if temporary (time period).

5. Description of process (include all sources of dust and fugitive dust). Please, if necessary, use additional sheets of paper for this description. Be sure to mark it as an attachment.

6. Type of material processed or disturbed.

7. Amount of material processed (tons per year, tons per month, lbs./hr., and applicable units).

8. Destination of product (where will the material produced be used or transported, be specific, provide address or specific location), information needed for temporary relocation applicants.

9. Identify the individual who is responsible for the implementation and maintenance of fugitive dust control measures. List name(s), position(s) and telephone number(s).

10. List, and attach copies of any contract lease, liability agreement with other companies that may, or will, be responsible for dust control on site or on the project.

Description of Fugitive Dust Emission Activities
(Things to consider in addressing fugitive dust control strategies.)

1. Type of activities (drilling and blasting, road construction, development construction, earth moving and excavation, handling and hauling materials, cleaning and leveling, etc).

2. List type of equipment generating the fugitive dust.

3. Diagram the location of each activity or piece of equipment on site. Please attach the diagram.

4. Provide pictures or drawings of each activity. Include a drawing of the unpaved/paved road network used to move loads "on" and "off" property.

5. Vehicle miles travels on unpaved roads associated with the activity (average speed).

6. Type of dust emitted at each source (coal, cement, sand, soil, clay, dust, etc.)

7. Estimate the size of the release area at which the activity occurs (square miles). For haul or dirt roads include total miles of road in use during the activity.

Description of Fugitive Dust Emission Controls on Site

Control strategies must be designed to meet 20% opacity or less on site (a lesser opacity may be defined by Approval Order conditions or federal requirements such as NSPS), and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary (site boundary) for compliance with R307-309-3.

1. Types of ongoing emission controls proposed for each activity, each piece of equipment, and haul roads.

2. Types of additional dust controls proposed for bare, exposed surfaces (chemical stabilization, synthetic cover, wind breaks, vegetative cover, etc).

3. Method of application of dust suppressant.

4. Frequency of application of dust suppressant.

5. Explain what triggers the use of a special control measure other than routine measures already in place, such as covered loads or measures covered by a permit condition (increase in opacity, high winds, citizen complaints, dry conditions, etc).

6. Explain in detail what control strategies/measures will be implemented off-hours, i.e., Saturdays/Sundays/Holidays, as well as 6 PM to 6 AM each day.

Description of Fugitive Dust Control Off-site

Prevent, to the maximum extent possible, deposition of materials, which may create fugitive dust on public and private paved roads in compliance with R307-309-5, 6, 7.

1. Types of emission controls initiated by your operation that are in place "off" property (application of water, covered loads, sweeping roads, vehicle cleaning, etc.).

2. Proposed remedial controls that will be initiated promptly if materials, which may create fugitive dust, are deposited on public and private paved roads.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the course must submit a report to the Executive Secretary within 15 days after receiving a Notice of Violation. The report must include the following information:

1. Name and address of dust source.

2. Time and duration of dust episode.

3. Meteorological conditions during the dust episode.

4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that the activity/equipment is the same.

5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the sources dust control plan.

6. Reasons for failing to control dust from the dust generating activity or equipment.

7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4, 5, 6, or 7.

8. If it can not be demonstrated that the current approved Dust Control Plan can result in compliance with R307-309-3 through 7, the Dust Control Plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust Notice of Violation, the source must submit the revised Plan to the Executive Secretary for review and approval.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Attachments: DFCM Form FDR R-307-309, Rule 307-309

CONTRACTOR'S AGREEMENT

FOR:

_____
_____
_____

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____ _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ _____ DOLLARS AND NO CENTS ($_____.00), which is the base bid, and which sum also includes the cost of a 100%

Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete within _____ (___) calendar days after the date of the Notice to Proceed. Contractor agrees to pay liquidated damages in the amount of $_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the

Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

_____
Signature Date

Title: _____

State of _____)
)
County of _____) _____
Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

_____
Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

_____
Financial Manager, Date
Division of Facilities Construction and Management

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

_____
_____ Date
Manager -
Capital _____

APPROVED AS TO FORM:
ATTORNEY GENERAL
May 25, 2005
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

_____
Division of Finance Date

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee, " in the amount of _____ _____ DOLLARS ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ _____ Dollars ($_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)

) ss.

COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____ _____, a corporation organized and existing under the laws of the State of _____authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ _____ Dollars ($_____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, l953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____ _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

CHANGE ORDER #_____

CONTRACTOR:

ARCHITECT:

AGENCY OR INSTITUTION:
PROJECT NAME:
PROJECT NUMBER:
CONTRACT NUMBER:
DATE:

CONSTRUCTION CHANGE DIRECTIVE NO.	PROPOSAL REQUEST NO.	AMOUNT		DAYS	
		INCREASE	DECREASE	INCREASE	DECREASE

	Amount	Days	Date
ORIGINAL CONTRACT			
TOTAL PREVIOUS CHANGE ORDERS			
TOTAL THIS CHANGE ORDER			
ADJUSTED CONTRACT			

DFCM and Contractor agree that the terms, contract sum, scope of the Work and time specified in this Change Order shall constitute the full accord and satisfaction, and complete adjustment to the Contract and includes all direct and indirect costs and effects related to, incidental to, and/or reasonably implied from such change in the contract terms, sum, scope of the Work and time.

Contractor:_____
Date

Architect/Engineer:_____
Date

Agency or Institution:_____
Date

DFCM: _____
Date

Funding Verification:_____
Date

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

_____

_____

_____

A list of items to be completed or corrected is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof.

The Contractor shall complete or correct the Work on the list of items appended hereto within _____ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: $_____.

_____ by: _____

CONTRACTOR (include name of firm) DATE

_____ by: _____

A/E DATE

_____ by: _____

USING INSTITUTION OR AGENCY DATE

_____ by: _____

DFCM DATE

cc: Parties Noted
DFCM, Director

SECTION 13140

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 13 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

A. Engineer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 7 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on Owner’s change order form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 13725

PANIC ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and Section 13140 apply to this Section.

1.2 SUMMARY

A. This Section includes a panic alarm system which is either hardwired through a switch based system utilizing the programmable logic (PLC) function of the main enterprise command and control system, or as an integrated monitoring function of another microprocessor based platform such as the access control or intercom system. This section includes latch buttons, system controls, and alarm annunciation through the main command and control system to both system video control screens.

B. Cable shall be provided and installed by the Contractor responsible for this Section of Work.

1.3 DEFINITIONS

A. Hard-Wired System: Panic alarm system components and devices are directly connected, through individual dedicated conductors, to a central control panel or controller.

B. Zone: Initiating device connected to a single panic alarm device circuit for annunciation of alarms.

1.4 SYSTEM DESCRIPTION

A. Description: System uses input points on the central logic controller of the main command system that are wired to field initiating devices. This information is then communicated so that it annunciates alarm conditions on the video control screens in both Central Control and the Court Security Office. The drawings indicate where these panic devices are to be located. Most of these locations are existing, but may or not work at present. All panic devices will be replaced with new switches. The field initiating devices could also be terminated as alarm inputs wired to an associated system that is to be integrated with the main command and control system, such as the access control or intercom system.

1.5 FUNCTIONAL PERFORMANCE

A. Panic alarm: Performed by indicated panic alarm buttons.

B. Alarm Annunciation: Audible signal sounds and flashing visual indication shall occur at the video control screen to identify the zone originating an alarm. The alarm is also integrated into the main command and control system software that shall be programmed to “call up” any cameras associated with the panic alarm location.

1.6 SUBMITTALS

A. General: Submit the following according to General Conditions Section 4.0.

B. Product data for system components, including "Nationally Recognized Testing Laboratory" (NRTL) listing data and list of materials, dimensioned plans, sections, and elevations showing minimum clearances, mounting arrangements, and installed features and devices.

C. Wiring diagrams for system, including all devices, components, and auxiliary equipment. System diagram is unique to the Project system; a manufacturer's generic system diagram is not acceptable. Diagrams differentiate between manufacturer-installed and field-installed wiring. Include diagrams for equipment and for system with all terminals and interconnections identified.

D. System operation description, including method of operation and supervision of each component and each type of circuit, and sequence of operations for all manually and automatically initiated system inputs. Description must cover this specific Project; manufacturer's standard descriptions for generic systems are not acceptable.

E. Operation and maintenance data for inclusion in "Operating and Maintenance Manual" specified in General Conditions Section 8.0. Include data for each type product, including all features and operating sequences, both automatic and manual. Include user's software data and recommendations for spare parts to be stocked at the site. Provide names, addresses, and telephone numbers of service organizations that stock repair parts for the system.

F. Product certifications signed by the manufacturers of system components certifying that their products comply with the referenced standards.

G. Separate Qualification Data for Manufacturers and Installers: Demonstrate their capabilities and experience as specified in Quality Assurance Article. Include lists of completed projects with project names and addresses, names of Engineers and Owners, plus other information specified.

H. Record of field tests of system.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firms experienced in manufacturing equipment of the types and capacities indicated that have a record of successful in-service performance. The prime system manufacturer and manufacturers of major system components are required to qualify separately.

B. Installer Qualifications: Five years experience as a company with systems of the type and scope indicated and authorized as a service representative of the prime system manufacturer.

C. Comply with NFPA 70, "National Electrical Code."

D. Comply with all local and state codes, statues and licensing requirements for the work of this Section.

E.. Listing and Labeling: Provide system and components that are listed and labeled for their indicated use and location on the Project.

1. The Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.8 EXTRA MATERIALS

A. General: Furnish extra materials described below that match products installed, packaged with protective covering for storage and identified with labels clearly describing contents.

B. Panic Alarm Devices: Furnish quantity equal to 5 percent of the number of units of each type installed but not less than 1 of each type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide discreet deviceproducts by the following:

1. Ademco.
2. Caddx.
3. CSI.
4. Detection Systems.
5. DSX
6. Hubbell.
7. Mallory.
8. Telemecanique

2.2 PANIC ALARM SYSTEM EQUIPMENT, GENERAL

A. Surge Protection: Comply with minimum requirements of UL Standard 1449, "Transient Voltage Surge Suppressors," for each component using solid-state devices and having a line voltage power source connection or an exterior underground signal connection.

B. Interference Resistance: Systems and equipment and their operation are not affected by radiated radio frequency interference and electrical induction of 15 V/m over a frequency range of 10 to 10,000 MHz and conducted interference signals up to 0.25 V rms injected into power supply lines at 10 to 10,000 MHz.

2.3 ELECTRICAL POWER

A. Normal System Power Supply: Provide 120 V 60 Hz power from a circuit out of an emergency panel. System components are supplied with power through the system control panel.

2.4 PANIC ALARM DEVICES, GENERAL

A. Panic Switch - Provide desk mounted: “Hold-up” or latch type duress switch. Mount on underside of desk top unless otherwise noted.

B. Silencing: Control system shall permit silencing of audible signals for individual zones but prevent the resetting of alarm visual signals while the condition still exists. Reset function is to take place at point of origin.

C. Annunciation: Video control screen shall indicate zone by means of flashing indications and audible chimes or tones.

2.5 WIRE AND CABLE

A. General: Stranded copper. Size conductors as indicated but not less than recommended by system manufacturer.

B. Comply with Division 16 Section "Wires and Cables" except as indicated.

C. Cable for Low-Voltage Control and Signal Circuits: Unshielded, twisted-pair cable, except where manufacturer recommends shielded cable.

2.6 RACEWAY

A. Comply with Division 16 Section "Raceways."

2.7 MISCELLANEOUS HARDWARE

A. General: System includes supports, mounting brackets, and installation hardware for components. Metal hardware is of corrosion-resistant material.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install system according to NFPA 70, applicable codes, and manufacturer's printed instructions.

B. Wiring Method: Install wiring in conduit where existing. Provide plenum rated cable for all non-conduit installation. Conceal raceways except in unfinished indoor spaces.

C. Wiring on Millwork and Cabinetry: Conceal and train the conductors to device locations with no excess. Provide and use cable management clips and hardware.

D. Number of Conductors: As recommended by system manufacturer for functions indicated.

E. Splices, Taps, and Terminations: Make splices, taps, and terminations on numbered terminal strips in junction, pull and outlet boxes, terminal cabinets, and equipment enclosures.

F. Tighten connections to comply with tightening torques specified in UL Standard 486A.

G. Identification of Conductors and Cables: Color-code conductors and apply wire and cable marking tape to designate wires and cables so media are identified and coordinated with system wiring diagrams.

H. Install power supplies and other auxiliary components as required, do not install such components near the devices they serve.

3.2 GROUNDING

A. Ground system components, conductor, and cable shields as per manufacturer, to eliminate shock hazard and to minimize ground loops, common mode returns, noise pickup, cross talk, and other impairments.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide services of a factory-authorized service representative to supervise the field assembly and connection of components and system pre-testing, testing, adjustment, and programming.

B. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

C. Pre-testing: Align and adjust the system and perform pre-testing of all components, wiring, and functions to verify conformance with specified requirements. Correct deficiencies by replacing malfunctioning or damaged items with new items. Retest until satisfactory performance and conditions are achieved.

D. Testing: Provide at least 10 days' notice of acceptance test performance schedule.

E. Operational Tests: Perform operational system tests to verify conformance with specifications. Test all modes of system operation, annunciation, and reset of all panic alarm devices.

F. Retesting: Correct deficiencies and retest until the total system meets the requirements of the Specifications and complies with applicable standards.

G. Prepare test and inspection reports.

3.4 ADJUSTMENT

A. Occupancy Adjustments: When requested within 1 year of date of substantial completion, provide on-site assistance in adjusting and reprogramming to suit actual occupied conditions. Provide up to 2 visits to the site for this purpose without additional cost.

3.5 DEMONSTRATION

A. Train Owner's operating personnel in the programming and operation of the system. Train Owner's maintenance personnel in the procedures and schedules involved in preventive maintenance and in programming, operating, adjusting, troubleshooting, and servicing of the system. Provide 2 hours minimum.

B. Schedule training with advance notice of at least 7 days.

END OF SECTION

SECTION 13760

INTERCOMMUNICATION SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Special Conditions and Section 13140 apply to this Section.

1.2 SUMMARY

A. This Section includes a digital voice intercommunication system that shall be integrated with the main enterprise command and control system defined in these specifications and is independent of any public or PBX telephone systems. It includes requirements for intercommunication components including, but not limited to, the following:

1. Master station.
2. Speaker-microphone stations.
3. Controls, amplifiers, and terminal equipment.
4. Power supplies.
5. Courtroom sound system interface
6. Wiring.

B. Related Sections: The following Division 16 Sections contain requirements that relate to this Section:

1. Section 13782, "Video Surveillance Systems," for switching of cameras to follow intercom calls.
2. Section 13942, “Electronic Control Systems," for interfacing with other enterprise and control systems.

C. Cable shall be provided and installed by the Contractor responsible for this Section of Work.

1.3 SYSTEM DESCRIPTION

A. General: The system shall be comprised of a digital intercommunication system and interface accessed by the main enterprise command and control system management software and displayed on the video control screen. The intercom system interface shall have its own audio signal buss, which shall be connected to any combination of remote speaker-microphone stations, selected by the user using the mouse supported control video screen.

B. New field intercom stations shall replace existing intercom stations at the location indicated with all new wiring being provided per manufacturer’s requirements.

C.. Functional Performance: Components and system features and functions shall include, but are not limited to, the following:

1. Provide two way voice communications without privacy tone between the master station (control panel) and the remote intercom stations.
2. All Call: The Master station is capable of initiating a message to all remote stations simultaneously by selecting all stations individually.
3. Hands-Free: Remote stations capable of conversing, hands-free.

4. Annunciation: A master station tone announces incoming call and video screen icon identifies the calling station.
5. Provide call answer by selecting the icon, and then communicate through the use of the "push to talk" function allowing one way communication with the remote intercom stations. This one way “switched" communication shall also allow the silent monitoring of the remote station whenever selected.
6. Selection of remote intercom stations on the video control screen shall interface with the video surveillance system to call-up video images of any associated cameras.
7. Noise: System shall be free from noises, such as pops, clicks, hiss and hum at master stations, or speaker-microphone stations during operation of the system, including standby mode.

1.4 SUBMITTALS

A. General: Submit the following in accordance with all General Conditions stated.

B. Product data for each type of product specified.

C. Shop drawings, detailing intercommunication system including, but not limited to, the following:

1. Remote station arrangement.
2. Equipment cabinet arrangement.

D. Wiring diagrams, detailing wiring for power, signal, and control, differentiating clearly between manufacturer-installed wiring and field-installed wiring. Identify terminals to facilitate installation, operation and maintenance.

E. Maintenance data for materials and products, for inclusion in Operating and Maintenance Manual specified in all General Conditions’ sections. Provide complete manual material concurrently with system submittal and provide updated final versions of manuals one month before completion of construction and final system turnover.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Five years of experience as a company with installation of similar scope and requirements for systems as specified herein and is a factory-authorized service representative with training certification for the equipment provided.

B. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70 "National Electrical Code" including, but not limited to:

1. Article 250, Grounding.
2. Article 300, Part A. Wiring Method.
3. Article 310, Conductors for General Wiring.
4. Article 725, Remote Control, Signaling Circuits.
5. Article 800, Communication Systems.

C. EIA Compliance: Comply with the following Electronics Industries Association Standards:

1. Sound Systems, EIA-160.
2. Loudspeakers, Dynamic Magnetic Structures, and Impedance, EIA-299-A.
3. Racks, Panels, and Associated Equipment, EIA-310-A.
4. Amplifiers for Sound Equipment, SE-101-A.
5. Speakers for Sound Equipment, SE-103.

D. UL Compliance: Comply with requirements of UL 50.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in factory containers. Store in clean, dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Jeron
2. SecurePlex
3. TOA.

2.2 SYSTEM REQUIREMENTS

A. General: Provide complete and fully functional intercommunication systems using materials and equipment of types, sizes, ratings, and performances as indicated. Use materials and equipment that comply with referenced standards and manufacturers' standard design and construction, in accordance with published product information. Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.

B. Future Capacity: Provide adequate capacity in equipment ratings, spare key or relay capacity, and spare terminal and cable conductor quantities to increase number of stations in the future by 25 percent above those indicated for the work of this project.

C. Spares: Provide the following spare equipment:

1. Speaker-microphone stations: 1 minimum.
2. Speakers/transformers: 1 minimum of each type or size.

2.3 EQUIPMENT AND MATERIALS

A. General: Provide all solid-state modular equipment.

B. Master Stations: Shall be a desk mounted station with communication through the control operator’s workstation and control screen terminal. Provide with microphone, speaker, and volume controls.

B. Security Speaker-Microphone Stations: Provide with the following minimum characteristics and features.

1. Speaker/microphone: Water and flame resistant 3 inch cone with a frequency response of 400 to 4000 Hz, minimum 2.5 ounce ceramic magnet, 25 volt matching transformer, and impedance of 8 ohms. Sensitivity as a speaker (EIA pressure rating) of at least 40 dB.
2. Wall plate and Mounting: 11 gauge stainless steel or 3/8" anodized aluminum with offset barriers behind openings, and tamper-proof mounting hardware. Flush wall mounting, as indicated for individual stations.
3. Backbox: Galvanized steel for wall mounted speakers with watertight gaskets for outdoor areas.
4. Call-in switch: A high security flush mounted switch on wall plate as to provide call-in to master station. Single pole, single throw, momentary, moisture and damage proof.

C. Intercommunication Amplifiers: Solid-state, with the following minimum features and characteristics:

1. Output: Capacity adequate for all functions with at least 12 watts RMS output.
2. Total Harmonic Distortion: Less than 5 percent at rated output power with a load equivalent to one station connected to output terminals.
3. Signal-To-Noise Ratio: 50 dB, or greater, at rated output.
4. Frequency Response: Within plus or minus 3 dB from 70 Hz to 10,000 Hz.
5. Input sensitivity compatible with speaker-microphones in master stations and speaker-microphone stations, so that amplifier delivers full-rated output with a sound pressure level of not more than 10 dynes per square centimeter impinging on a speaker-microphone or handset transmitter.
6. Protection against amplifier damage in case of shorted or open output.

E. Wire and Cable: For general use, provide wire and cable with the following features:

1. Conductors: Size signal conductors as recommended by manufacturer, but not smaller than 22-gauge. Use jacketed single and multi-twisted pair, untinned solid copper conductors.
2. Insulation: Thermoplastic, not less than 1/32-inch thick.
3. Shielding: Only where recommended by manufacturer; 34-gauge tinned soft copper strands formed into a braid or approved equivalent foil type. Shielding coverage on the conductors shall be not less than 60 percent.

D. Plenum Cable: UL approved for plenum installation.

E. Weatherproof Equipment: Where equipment is exposed to the weather, provide items specifically designed and listed for such duty.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with the Installer present, for compliance with requirements and other conditions affecting the performance of the intercommunication system work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.

B. Wiring Methods: Install wiring in existing raceways. All new cabling installed outside of metal raceways shall be plenum rated.

C. Impedance and Level Matching: Carefully match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.

D. Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors as recommended by system manufacturer to provide control functions indicated or specified.

E. Wiring within Enclosures: Provide adequate length of conductors. Bundle, wrap, and train the conductors to terminal points with no excess. Provide and use cable management hardware.

F. Provide physical isolation from each other for speaker-microphone, line-level, speaker-level, and power wiring. Provide physical separation as recommended by equipment manufacturer for all other intercommunication and paging system conductors.

G. Splices, Taps, and Terminations: Make splices, taps and terminations on numbered terminal strips in junction, pull, and outlet boxes, terminal cabinets and equipment enclosures.

H. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.

I. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

J. Repairs: Wherever walls, ceilings, floors, or other building finishes are cut for installation, repair, restore, and refinish to original appearance.

L. Existing Intercom stations: All existing stations are to be replaced with new wall stations and a new connection to the digital intercom system. The contractor is responsible for any work and materials that may be required during the installation of new stations at existing wall boxes.

3.3 GROUNDING

A. Provide equipment grounding connections for intercommunication systems as required. Tighten connections to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

B. Ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize to the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide 5-ohm ground at main equipment location. Measure, record, and report ground resistance.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide services of a factory authorized service representative to supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.

B. Pre-testing: Upon completing installation of the system, align, adjust, and balance the system and perform complete pre-testing. Determine, through pre-testing, the conformance of the system to the requirements of the Drawings and Specifications. Correct deficiencies observed in pre-testing. Replace malfunctioning or damaged items with new and retest until satisfactory performance and conditions are achieved.

C. Testing: Upon completion of pre-testing, notify the Construction Manager a minimum of 10 days in advance, of acceptance test performance schedule and conduct tests in his presence. Provide a written record of test results.

D. Operational Test: Perform an operational system test to verify conformance of system to these Specifications. Perform tests that include originating material at intercommunication stations and observing sound reproduction for proper routing and volume levels and for freedom from noise and distortion.

E. Inspection: Make observations to verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

F. Retesting: Rectify deficiencies indicated by tests and completely retest work affected by such deficiencies at Contractor's expense. Verify by the system test that the total system meets the Specifications and complies with applicable standards.

3.5 COMMISSIONING

A. Train Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. Provide a minimum of two hours training.

B. Schedule training with Owner through the Construction Manager, with at least seven days advance notice.

C. Occupancy Adjustments: When requested by the Construction Manager within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels, resetting matching transformer taps, and adjusting controls to suit actual occupied conditions. Provide up to three visits to the site for this purpose.

3.6 CLEANING AND PROTECTION

A. Prior to final acceptance, clean system components and protect from damage and deterioration.

END OF SECTION

SECTION 13782

VIDEO SURVEILLANCE SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including all General and Supplementary Conditions apply to work of this section.

B. Requirements of the following Division 13 Sections apply to this section:

1. Section 13725, “Panic Alarm System”
2. Section 13760, “Intercommunications Systems”
3. Section 13942, “Electronic Control Systems”

1.2 SUMMARY

A. Extent of video surveillance systems work is indicated by drawings and schedules. The work required will replace the existing multiplexer/VCR based video system with a new matrix switching system and digital recording. The new matrix switch shall be an integral part of a centrally managed enterprise command and control system integrating existing components of access control with new intercom and PLC driven devices. It is therefore required that the matrix switch be completely compatible with, and controlled by, this centrally managed system.

B. The new matrix switch shall be connected with all existing camera locations as well as new locations as indicated in the drawings. All camera locations shall be new installations, replacing all existing cameras and housings with new camera assemblies.

C. Digital Video Recorders (DVR) shall be included in this work to provide a 24/7 recording all cameras.

D. Camera video monitoring shall be available at two locations with control and viewing selection using client software provided with the system equipment.

E. Camera selection and control shall use the main enterprise command and control system as the operator’s interface to the video system components. Any keyboards provided with the video system shall be used for “joystick” control of pan/tilt/zoom cameras only. All camera selection and multi-screen control and/or configuration shall be via the main enterprise system control screen and software programming.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's data on video surveillance systems including components and accessories.

B. Shop Drawings: Submit layout drawings of video surveillance systems including but not limited to cameras, monitors, video switchers, and keyboards, showing scaled components and spatial relationship to associated equipment. This shall include all wall elevations, rack elevations, console arrangements, monitoring mounting, and power supply installations.

C. Wiring Diagrams: Submit wiring diagrams for video surveillance systems, including interconnecting signal/video units and electrical power connections to equipment and

components. Differentiate between portions of wiring which are manufacturer-installed and portions which are field-installed. Provide wiring requirements for the network connections to the central management system.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of video surveillance systems, components and accessories, of types, capacities and characteristics required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications: Firms with at least 3 years of successful installation experience with projects utilizing video surveillance system work similar to that required for this project. The Installer must be a factory trained representative of the system components submitted. It is also required that the Installer be the same contractor that will be installing the new centrally managed security control and video screen system. See Section 13942.

C. Codes and Standards:

1. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC 800-Series articles as applicable to installation, and construction of video surveillance equipment and signal distribution systems.
2. UL Compliance: Comply with applicable requirements of UL Standards 486A and B, 813, 983, 1409, 1410, 1412, 1414, 1416, 1417, and 1418 pertaining to video surveillance system products. Provide video surveillance systems and components which are UL-listed and labeled.
3. NEMA Compliance: Comply with requirements of Stds Pub/No. WC 41, "Coaxial Communication Cable," pertaining to testing of coaxial cable.
4. IEEE Compliance: Comply with applicable requirements of IEEE 208, "Video Techniques: Measurement of Resolution of Camera Systems."
5. EIA Compliance: Comply with applicable requirements of Electronic Industries Association Standards RS-170, 222, 232, 312, 330, 403, 412, 420, 439, and 455 pertaining to video surveillance equipment and accessories.
6. FCC Compliance: Comply with Subpart J of PART 15, FCC Rules pertaining to computing devices including Class A, Class B, personal and peripheral types. Provide equipment which complies with technical standards for both radiated and power line conducted interference.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store video surveillance system components properly packaged in factory-fabricated type containers. Protect from weather and construction damage.

B. Do not install damaged equipment; replace and return damaged units to equipment manufacturer.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate consistently with the State and Court staff during installation of system to see that the installation is orderly and minimally disrupts the regular course of business of the Courts.

1.7 MAINTENANCE

A. Maintenance Data: Submit maintenance data and parts list for each video surveillance system component; including "trouble shooting" maintenance guide. Include that data, product data and shop drawings in a maintenance manual in accordance with requirements of all General Conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide video surveillance system products of one of the following (for each type of product):

1. Video Surveillance Wire/Cable:

   a. Belden Corp.
   b. CommScope.
   c. National Wire and Cable Corp.
   d. Standard Wire and Cable Co.
   e. West Penn Wire.

2. Video Surveillance Equipment:

   a. American Dynamics
   b. Pelco Sales, Inc.
   c. Bosch (Philips)
   .

2.2 VIDEO SURVEILLANCE SYSTEMS

A. General: Provide video surveillance systems, of types, sizes, capacities and electrical characteristics indicated, consisting of cameras, video matrix switching systems, digital recorders, signal transmission lines, and other components as required for a complete installation. Except as otherwise indicated, provide manufacturer's standard video surveillance system components as indicated by published product information, designed and constructed as recommended by manufacturer.

B. Video Surveillance Camera (Fixed Dome System): Provide low-light level (1.0 lux), 1/3 or 1/4 inch format, high resolution color surveillance dome system camera assemblies with internal light compensation solid-state CCD circuitry. Provide assembly with auto iris and vari-focal lens. Provide manufacturer recommended 24 VAC power supply and all required mounting hardware. Dome systems shall be interior grade and ceiling mounted at locations indicated in the drawings. This shall include both new and existing (to be replaced) locations.

C. Video Surveillance Camera (Pan/Tilt/Zoom Dome System - Outdoor): Provide 23X day/night (color/black-white), 1/4 or 1/6 inch format, high resolution outdoor surveillance dome system camera assembly with internal light compensation solid-state CCD circuitry. Provide assembly with auto focus and auto iris. The system shall have control adjustment technology for low contrast enhancement. Provide manufacturer recommended 24 VAC power supply and all required mounting hardware. Dome systems shall be exterior grade with appropriate environmental functions and corner mounted at locations indicated in the drawings.

D. Video Matrix Control System: Provide a microprocessor-based video system capable of matrix switching multiple camera inputs and outputs, with pan/tilt/zoom control. The system shall be modular design, accommodating a maximum of 256 inputs by 32 outputs (capacity), comparable alarm inputs, a computer interface port, and shall be able to network directly with the centrally controlled management system, providing all functions and camera control. Camera and display selections shall be operated from the enterprise control screen and not through a separate keyboard. Keyboard use shall be limited to pan/tilt/zoom control only. Power requirements are 120 VAC, 60 Hz.

E. Quad Video Processors: Provide a basic featured four input, one output color processor that offers full time quad display with no user controls required. Each input shall use automatic

gain and level control to increase image accuracy and eliminate on-screen ”flicker”. Power requirement of 120 VAC, 60 Hz.

F. Video Surveillance Monitors: Provide approximately 20-inch color monitors as indicated, with over 400 lines resolution, solid-state circuitry. Provide brightness, contrast, horizontal hold, and vertical hold controls on front panel and service adjustments for height, width, vertical linearity, horizontal linearity, focus, centering, and low voltage regulator on back panel. BNC type video connectors. Power requirement of 120 VAC, 60 Hz.

G. Digital Video Recorder: Provide a digital video recording system that is compatible with the above specified video matrix control system. Provide adequate storage for a minimum of 5 frames per second per camera at standard resolution for a period of 21 days on board the recorder. Provide on screen menus for all programming functions. System shall be capable of interfacing with third party control systems, providing both live and recorded images and full control function, including video loss and hard drive failure. Recording modes shall include at a minimum: continuous, motion detection, alarm activation, and timed schedules. The recorder shall be provided with 16 inputs per unit, capable of audio channel recording, and providing networked video transmission. Power requirement of 120 VAC, 60 Hz.

H. DVD Recorder: Provide a single DVD recorder installed such that images from all installed digital video recorders can be downloaded for copies. This recorder shall be placed in the main security control room in Room 118.

I. Security Console/Equipment Racks: Provide 3 floor standing, single bay consoles installed together as a single console as indicated in the drawings. Each console bay shall have the standard 19" (EIA/TIA) rack mounting below the work counter and 2 monitor rack spaces above the work surface as shown. Dimensions shall be as follows: Equipment rack – 27 inches deep, work counter - 29 inches high and 18 inches deep, overall height of 76 inches. Provide the Middle Atlantic Convective series with all necessary accessories and hardware for a complete console installation.

2.3 VIDEO SURVEILLANCE SYSTEM CABLING AND ACCESSORIES

A. The cable is to be furnished and installed by Section 13782, with the following cable type specifications:

1. Coaxial Cable: Provide RG-6/U type, video grade, flexible coaxial cable; 75-ohm characteristic impedance; with solid 18 gauge bare copper inner conductor; outer shield conductor of bare copper braid with 95% coverage; foam polyethylene dielectric core with black PVC jacket.

2. UTP (Alternate cable type): UTP cable can be substituted for coaxial cable with the inclusion of media converters at both the camera and headend terminations. Cameras with internal UTP conversion are also approved. Sufficient information on cable, conversion equipment, and any intermediate termination hardware is required in the submittals for approval.

B. Coaxial Cable Connectors: Provide video grade, Type F or BNC type cable connectors for RG-6/U flexible coaxial video cable, where indicated and or required.

C. Power Cable. Provide a minimum of 16 gauge UTP cable. Size cable for distances greater than those recommended by the manufacturer to appropriate gauge to adjust for power loss.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which video surveillance systems are to be installed, and notify Owner in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer and the Court.

3.2 INSTALLATION OF VIDEO SURVEILLANCE SYSTEMS

A. Install video surveillance systems and components where indicated, in accordance with equipment manufacturer's written instructions, in compliance with National Electrical Code, and with recognized industry practices, to ensure that video surveillance system complies with requirements and serves intended purposes.

B. Install video surveillance equipment properly to avoid causing mechanical stresses, twisting or misalignment of equipment being exerted by clamps, supports, and cabling. Re-use existing conduit where available. All other cable not installed in conduit shall be plenum rated.

C. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torque requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and B, and the National Electrical Code.

D. Avoid splices in media (cable) runs.

3.3 GROUNDING

A. Provide equipment grounding connections for video surveillance systems as required by manufacturer. Ensure and demonstrate that resistance to solid earth for signals is less than, or equal to 3 ohms.

3.4 ADJUSTING AND CLEANING

A. Set field-adjustable video surveillance system components for input voltages, current settings and frequency settings.

B. Touch-up scratched and marred surfaces to match original finishes; remove dirt and construction debris.

3.5 FIELD QUALITY CONTROL

A. Upon completion of installation of video surveillance system components, and after circuitry has been energized with normal power source, test video surveillance systems to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance, otherwise remove and replace with new units and proceed with retesting.

3.6 DEMONSTRATION

A. Train Owner's operating personnel in the programming and operation of the system. Train Owner's maintenance personnel in the procedures and schedules involved in preventive maintenance and in programming, operating, adjusting, troubleshooting, and servicing of the system. Provide a minimum of 4 hours training.

B. Schedule training with advance notice of at least 7 days.

END OF SECTION

SECTION 13942

ELECTRONIC CONTROL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including all General and Special Conditions apply to this Section.

B. Requirements of the following Division 13 Sections apply to this Section:

1. 13725, Panic Alarm System
2. 13760, Intercommunications Systems
3. 13782, Video Surveillance Systems (CCTV)

1.2 SUMMARY

A. This section includes Electronic Control Systems. It includes requirements for system components including the following:

1. Programmable System Controllers or control systems using PLC based technology
2. Control video screens supporting mouse selection and control
3. Management Control Software (Enterprise Command and Control)
3. Control wiring
4. Testing and training
5. System programming

B. Carefully coordinate work of this section and other sections and divisions such that full electronic system control is achieved as specified. Refer to the Sections listed above.

1.3 SYSTEM DESCRIPTION

A. General: Provide a programmable control system and integration of compatible third party systems (intercom, access control, duress, video management) to manage operations as indicated and specified herein.

1. Control system shall interface with access control, intercom, and video surveillance systems providing to the operator via the control panel screen the following functions (but not limited to):

a. Door status for all monitored doors in the facility.
b. Intercom selection and control.
c. Panic alarm status.
d. Access controlled doors' alarms (Forced and Door Ajar).
e. Secondary fire alarm information.
f. Video camera selection, monitoring and control.
g. Automatic video "call up" for panic alarms and "selected" intercoms.
h. Camera display configuration and quad screen programming
i. Elevator status and control

2. Furnish all labor, materials, tools, equipment, and services for all electronic control systems as indicated in accordance with provisions of Contract Documents.
3. Completely coordinate with work of all other trades.

4. Work that is required, but not specifically indicated, shall be provided by the Contractor to install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

B. Functional Performance: Provide logic to control system operation as indicated below. Components and system features and functions shall include, but are not limited to, the following:

1. Access Controlled Door: Provide a screen icon to indicate door location with door alarm notification for both alarm states (Forced door and Door ajar). Provide global override of all access control functions at all doors with the selective opening of any overridden door from the control screen in emergency situations.

2. Unsecure Indication Icon: Provide such for each monitored door (non access controlled door) to indicate an open condition. A similar status indicator shall also be used to indicate access control system alarms for all controlled doors.

3. Secure Indication Icon: Provide such for each monitored door to indicate a closed and locked condition.

4. Silence: This singular control switch icon, when engaged, will silence tones associated with all alarm notifications, including panic (duress), monitored and controlled doors, and fire indications. The silence function shall not affect any visual indications pertaining to the alarms and shall remain in effect for a programmable amount of time, after which the tones will again sound if they have not been reset.

5. Reset: This singular control switch icon resets the alarm function for the associated system alarms on the control screen if the device and/or system is no longer in alarm. If not, the tone and flash will again commence.

6. Intercom Icon: Provide screen icons for all intercom locations. This icon shall change states and indicate a “call in” from the station when the pushbutton on the intercom is activated. When the icon is selected by the operator, an intercom listen channel shall open allowing the operator to hear audio from the field station. When this icon is selected, any associated cameras images shall be displayed on the call up monitor. The operator can respond back to the field intercom station by selecting the push to talk button. The intercom can be used for both response to a call in and to monitor a location without an initial call in being required.

   a. Courtroom Sound/Intercom Interface. Audio from the Courtroom sound systems shall be included as inputs to the intercom system, but without screen icons. Courtroom sound shall be monitored and recorded only as a function of a panic/duress switch being activated in the courtroom. No other audio monitoring of courtroom proceedings is allowed.

7. Camera Icon: Provide screen icons for all camera locations. When selected by the operator, the video image from the selected camera shall be displayed on the “call up” video monitor in full screen. This image shall remain until it is replaced with the next selected camera image or any automatic call up camera images.

8. Special Function Icons: In addition to the above icons for each field installed device and the alarm control switches, the main screen shall also include two special function icon indications for fire alarm and elevator status. The fire alarm icon shall provide a simple secondary indication of the fire alarm panel. If zone indication is available from the existing fire alarm panel, display this zone information on the main screen. If not, a main fire alarm notification shall be displayed. The elevator status icon shall indicate when the elevator is in “Secure Mode”.

9. Separate Page Functions: Besides the main screen functions described above, two alternate pages shall be provided for ancillary actions.

    a. Elevator Status and Control Page. This page shall be programmed to show current floor status for all elevators. The control of all elevators shall also be possible from this page. This elevator control shall consist of stopping, sending to a specific floor, and door closing and opening on demand by the central control operator.
    b. Camera and Quad Configuration Page. This page shall be programmed to provide to the operator the means to select camera inputs from any of the video matrix outputs and assign them as inputs to any of the quad screen units. The outputs of the quad units shall be permanent inputs back into the matrix switcher, not subject to change.

1.4 SUBMITTALS

A. General: Submit the following in accordance with General Conditions.

1. Product data for each type of product specified.

2. Shop drawings, detailing electronic control system including, but not limited to, the following:

    a. Built-in station arrangement including wall and rack elevations.
    b. Equipment cabinet arrangement.
    c. Ladder logic programming detailing software and hardware requirements for PLC operation for a complete functioning system.

3. Wiring diagrams, detailing wiring for power, signal, and control, differentiating clearly between manufacturer-installed wiring and field-installed wiring. Identify terminals to facilitate installation, operation and maintenance.

4. Prior to preparation of shop drawings for control wiring, review the electrical requirements of all electric operated security and operation management devices, i.e., position switches, panic/duress switches, courtroom sound system interfaces, cameras, etc. to be installed on this project and coordinate with the appropriate facility managers and/or contractors.

5. Maintenance data for materials and products, for inclusion in Operating and Maintenance Manual specified in Division 1 and Division 16 Section "Basic Electrical Requirements." Provide complete manual material concurrently with system submittal and provide updated final versions of manuals one month before completion of construction and final system turnover.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of electronic control systems, software, components and accessories, of types, capacities and characteristics required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer Qualifications: Firms with three years experience, as a company, with projects that have a similar scope and equipment specifications shall perform this work. Proof of prior performance may be requested for Installer approval. The Installer shall provide at least one experienced installer, always on site, with at least 5 years of successful installation experience with projects utilizing electronic control systems similar to that required for this project.

C. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70 "National Electrical Code" including, but not limited to:

1. Article 250, Grounding.
2. Article 300, Part A. Wiring Method.
3. Article 310, Conductors for General Wiring.
4. Article 725, Remote Control, Signaling Circuits.
5. Article 800, Communication Systems.

D. EIA Compliance: Comply with applicable Electronics Industries Association Standards.

E. UL Compliance: Comply with requirements of UL 50.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in factory containers. Store in clean, dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide system products and programming by one of the following:

Enterprise Command and Control Systems (Software)

1. Intelli-site Inc.
2. Wonderware
3. Citech

Logic Controllers

1. Square D.
2. Omron

2.2 SYSTEM REQUIREMENTS

A. Enterprise Command and Control System: The system shall provide control of all input/output functions of the video control screens and associated remote devices. The system shall provide interface between the video screens and the other related systems.

1. The longest time interval between switch input and system output to operate lock (or other systems) shall be 0.25 seconds. Intent is to provide real time operation of system without delays.
2. System controller shall be capable of expansion for future additions of security devices. Expansion capability shall be unlimited (networked).

B. The System control hardware shall be general purpose in nature and not custom designed for specific application. The System shall become location and operation specific upon installation of input/output connections and programming.

C. Except as otherwise specified herein, the equipment and materials of this section shall be product(s) of a single manufacturer engaged in the production of logic control systems for industrial applications for a minimum of three years.

2.3 PROGRAMMABLE LOGIC CONTROLLER

A. The programmable logic controller, power supply and I/O modules shall be of modular construction, enclosed in a protective housing which is capable of being rack mounted or backplane mounted.

1. Each I/O module shall be a self-contained unit housed within proper placement and polarity. All identical function modules shall be coded alike.
2. The controller shall be constructed to withstand as a minimum, the following climatic conditions, without the need for special enclosures or additional environmental control equipment such as fans or air conditioning.
   a. Temperature: 0 to 60 C.
   b. Storage Temperature: -40 to 70 C.
   c. Humidity: 10-90 percent relative humidity (non-condensing).
3. Programmable controller manufacturers must guarantee the availability of replacement spare parts for a minimum of ten (10) years.
4. All input/output modules and racks must be of a standard type and be fully interchangeable with all size controllers.
5. All controllers shall have built-in comprehensive self-test and self-diagnostic capabilities.
6. All controllers are to be equipped with built-in "watchdog" relay contacts. These contacts shall be normally open dry contact which will remain closed during normal controller operation and open in the event of a controller fault, sensed by the controller's built-in self diagnostics.
7. All controllers are to be equipped with built-in status in status indication of the following information:
   a. Power applied to the system.
   b. DC power valid (+5, +15, -15 VDC).
   c. Watchdog contacts healthy.
   d. Serial port(s) active.
   e. Ram battery failure.
   f. EPROM program failure.
8. All I/O cards shall be 24V dc and each card shall have as minimum thirty two (32) discrete circuits. No direct wiring to the front of the module should be required. A separate wiring harness should be available with a D-type connector on one end (for connection to the I/O module) and a "fan-tail" on the other for screw down connection.
9. Controllers must be capable of driving local I/O, where local is defined as up to fifty (50) FT from the control unit, without the need for further intelligent interface modules.
10. When required, the system must be capable of controlling remote I/O up to a distance of ten thousand (10,000) FT from the controller, using high speed links with a minimum data rate of one hundred and eighty (180) Kbaud. Communications over this link shall be accomplished using twisted pair wires with an overall shield.

B. Functional requirements:

1. The controller software shall be stored in EPROM and the operating software and all data bases shall be stored in battery backed RAM.
2. Memory shall be expandable. Each memory segment shall be field expandable up to the maximum amount of RAM allowed in the programmable controller. Memory battery back-up shall be for a minimum period of twelve (12) months in the event of a power failure.
3. The programmable controllers shall provide all necessary logic functions, timing functions, input points, output points, memory, communication capabilities and software for the operating features shown in the contract documents.

4. Communication capability shall be provided in logic controllers to allow serial communications between distributed control systems. Serial communications shall be RS232, RS422, or 20ma and shall operate at selectable speeds from 110 to 9600 baud. Communication ports shall be configurable as a data link between controllers, encoders, a VDU port or printer port. As a minimum, two communications ports shall be available as in-built to each controller selected.
5. Provide real time clock.

C. Provide all necessary power supplies to power all components of the controller. Include battery back-up power to provide full function of the controller system for a minimum of 2 hours.

D. Initial programming: Provide complete programming services of the system controller prior to substantial completion.

2.4 POWER SUPPLIES

A. Provide power supplies as required for control and indication functions. Power supplies shall conform to requirements of NEC Article 725. Provide over-current protection of primary and distribute secondary over-current protection for secondary wiring circuits.

1. Class 1 power supplies shall be provided with over-current protection as required by NEC Article 725. Provide over-current protection for all conductors in accordance with ampere rating. Minimum conductor size served by a Class 1 power supply shall be 18 GA.
2. Class 2 power supplies shall be power limited and/or over-current protected in accordance with NEC Article 725. Nameplate rating of power supply shall not exceed limits indicate din NEC Article 725. Minimum conductor size served by a Class 2 power supply shall be 22 GA.

B. Power source (120 VAC) circuits for all equipment and remote devices shall be provided by the Owner. Provide terminals for all incoming circuits and distribute loads equally among all circuits provided. Provide power slave relays as part of the control system with ratings two times greater than expected device load.

2.5 ENCLOSURES

A. Install all components of control system in the existing systems' equipment cabinets.

B. Install engraved nameplates on each enclosure with system designation.

2.6 RELAY INTERFACE (Auxiliary Relays)

A. Provide relay interface between control system and all controlled devices.

B. Relays:

1. Minimum contact rating to be two times greater than inrush rating of motor or solenoid.
2. General purpose: Potter and Brumfield KV Series, 10 or 15 amp as required, enclosed.
3. Heavy duty: Potter and Brumfield KRP3-H Series, 20 amp, enclosed.

C. Label all relays and terminations with designations to match installation and maintenance drawings.

D. Provide individual fuse for each relay to protect relay and other circuitry from a short circuit failure at the lock.

2.7 WIRE AND CABLE

A. All cable required as a part of this Section, with the exception of power circuits provided by Division 16, shall be provided and installed by the Security Control contractor (Section 13942). All Class 1 wiring shall be building wire of type indicated elsewhere in Division 16. Provide over-current protection for conductors in accordance with NEC. Minimum sizes as follows:

1. Indication: 18 GA minimum.
2. Control: 16 GA minimum.
3. High power (120 VAC): 14 GA minimum.

B. All Class 2 wiring may be single conductor or multiple conductor cables. Conductors to be stranded type tinned copper, 22 GA minimum, PVC insulated.

2.8 SPARE PARTS

A. Deliver spare parts in protective wrapping and packaging for proper storage.

B. Provide the following spare parts:
1. Input modules: One of each type used.
2. Output modules: One of each type used
3. Relays: Five of each type used.
4. Fuses: Two of each type used.
5. Power supply: One of each type used.

2.9 ENTERPRISE COMMAND AND CONTROL MANAGEMENT SOFTWARE

A. Provide a software package that has a complete line of scaleable PC-based systems designed to integrate, control, and manage electronic security components and subsystems into a networked enterprise command and control management system. It shall be capable of integrating security products and subsystems from multiple manufacturers.

B. The system shall incorporate a user-defined point and click windows Graphical User Interface (GUI) that can be configured to meet project specific needs.

C. The system shall allow the addition of site, building and floor plan map graphics or control diagram graphics to support alarm annunciation, device control and device monitoring. User-defined active icons shall be added to the screen graphics that allow the user to control and monitor devices utilizing a mouse.

D. The system shall be based on a 32-bit operating system and incorporate database management to provide for consolidated reporting and automated event processing for all system devices.

E. The system shall run on an industry standard local area network to provide communications from the main server to all system workstations, utilizing Ethernet topology along with TCP/IP protocol providing an integrated networked system that is compatible with most building networks.

F. The system shall be scaleable to provide for future expandability.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with the Owner present, for compliance with requirements and other conditions affecting the performance of the electronic control system work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.

B. Provide complete coordinated systems for operation, monitoring and control of systems as indicated on drawings and specifications.

C. All low voltage wiring in consoles shall be Class 1 or Class 2 power limited circuitry in strict accordance with NEC Article 725 except power cords for amplifiers, monitors, etc. Maintain separation of conductors as required.

D. Wiring system shall be Class 1 for both control and indication. Wiring from control panel to equipment cabinet may be Class 2. Maintain separation of conductors per NEC Article 725.

E. Wiring Methods: Install wiring in existing raceway.

F. Impedance and Level Matching: Carefully match input and output impedances and voltage levels at signal interfaces. Provide matching networks where required.

G. Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors as recommended by system manufacturer to provide control functions indicated or specified.

H. Install exposed cables parallel and perpendicular to surfaces or exposed structural members, and follow surface contours. Secure and support cables by straps, staples, or similar fittings so designed and installed as not to damage the cables. Secure cable at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, or fittings.

I. Wiring within Enclosures: Provide adequate length of conductors. Bundle, wrap, and train the conductors to terminal points with no excess. Provide and use cable management hardware.

J. Provide physical isolation between wiring for different systems and voltages. Provide physical separation as recommended by equipment manufacturer for other electronic control system conductors.

K. Splices, Taps, and Terminations: Make splices, taps and terminations on numbered terminal strips in pre-approved junction, pull, and outlet boxes, terminal cabinets and equipment enclosures.

L. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all cables are identified in coordination with system wiring diagrams.

M. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

N. Repairs: Wherever walls, ceilings, floors, or other building finishes are cut for installation, repair, restore, and refinish to original appearance.

3.3 GROUNDING

A. Provide equipment grounding connections for electronic control systems as required. Tighten connections to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

B. Ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize to the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide 5-ohm ground at main equipment location. Measure, record, and report ground resistance.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide services of a factory authorized service representative to supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.

B. Pre-testing: Upon completing installation of the system, align, adjust, and balance the system and perform complete pre-testing. Determine, through pre-testing, the conformance of the system to the requirements of the Drawings and Specifications. Correct deficiencies observed in pre-testing. Replace malfunctioning or damaged items with new and retest until satisfactory performance and conditions are achieved.

C. Testing: Upon completion of pre-testing, notify the Construction Manager a minimum of 10 days in advance, of acceptance test performance schedule and conduct tests in his presence. Provide a written record of test results.

D. Operational Test: Perform an operational system test to verify conformance of system to these Specifications. Perform tests that include originating and page material at electronic control stations and observing sound reproduction for proper routing and volume levels and for freedom from noise and distortion.

3.5 COMMISSIONING

A. Train Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. Provide separate training sessions for operation and maintenance personnel. Provide training of operating personnel on non-consecutive days. Provide a minimum of twelve hours of training.

B. Schedule training with Owner through the Construction Manager, with at least seven days advance notice.

C. Occupancy Adjustments: When requested by the Construction Manager within one year of date of Substantial Completion, provide on-site assistance in programming, and adjusting controls to suit actual occupied conditions. Provide up to 6 visits to the site for this purpose.

3.6 CLEANING AND PROTECTION

A. Prior to final acceptance, clean system components and protect from damage and deterioration.

END OF SECTION